

**A New Species of *Jenneria* (Jousseaume, 1884)
from the Belle Glade Member, Bermont Formation of Southern Florida
(Mollusca: Gastropoda: Ovulidae)**

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ABSTRACT The southern Floridian fossil group comprises five *Jenneria* species, including one synonym, plus the newly described species herein, *Jenneria sandrae*. The earliest species is from an uncertain date from the Golden Gate Member of Plio-Pleistocene and the genus ended with the Belle Glade Member, Bermont Formation [Chibanian Age (~750 ka)], Late Middle Pleistocene.

KEY WORDS Ayers Landing, Bee Branch, Belle Glade, Bermont, Coffee Mill Hammock, Caloosahatchee, Capeletti Brothers Pit, *Cypraea*, Dade County, DuBar, Fort Denaud, Fort Thompson, Formation, *Jenneria gabbiana*, Gelasian, Griffin Brothers Pit, Holey Land, *Jenneria hepleri*, *keatoniae*, *lindae*, *loxahatchiensis*, Member, Miami Canal, Miami Limestone, Olsson, paciphile, Palm Beach Aggregates Pit, Petuch, Piacenzian Pliocene, Pleistocene, *Jenneria pustulata*, *richardsi*, Rinker Materials SCL Quarry, *Jenneria sandrae*, Sarasota, M. Smith, *Jenneria violetae*.

INTRODUCTION

“The genus *Jenneria* Jousseaume comprises a group of beautiful medium to small *Cypraea*-like shells; they are covered with wart-like pustules on the dorsum and have teeth that extend across the venter. ... *Jenneria* is a paciphile genus [Taxa that lived in the Tertiary (before Recent) Caribbean, now extinct, but survive in the eastern Pacific, *i.e.*, *Jenneria pustulata* (Lightfoot, 1786)]. Its Gatunian fossil record starts in the late early to early middle Miocene Caribbean and it disappears at the end of the early Pleistocene” (Groves and Landau, 2021). The *Jenneria* genus was described in 1884 by Jousseaume as *Cypraea Jenneria* based on the Type species: *Cypraea pustulata* Lightfoot, 1786. In 1967, Olsson updated and revised the description: “Small to medium-sized, *Cypraea*-like shells with ovate to elliptical form, rounded dorsum, covered with solid, wart-like pustules on a transversely threaded surface, the base *Trivia*-like, flattened or a little arched and sculptured with strong cross-ribs terminating in

teeth along the aperture and in pustules along the outer edge. The dorsal furrow is generally weak. The pustules are generally arranged more or less in line, each line connected by a thread, like pearls on a string, except those in the middle of the dorsum, which may stand free. Immature specimens, even with a rounded lip, have no pustules and the sculpture consists only of fine, transverse threads on the upper surface, and partly developed, stronger cross-ribs on the base. The fossula is a large, smooth, excavated pit bounded within by a sharp ridge”.

Relevant Floridian Stratotypes

Golden Gate Member. The Golden Gate Member encompassed the coral/coralline reef structures on the perimeters of the Everglades pseudoatoll in the Plio-Pleistocene. The strata at two of the quarries, the Mule Pen and Bonita Springs Aggregates Quarries, were not differentiated (all coral/coralline limestones) and intertongued. Further, the dragline dredging excavations further mixed the strata within the

spoil piles. No species have been collected in situ, but rather from spoil piles. Some fossil gastropod species have been assigned member status based upon known species from other locations outside the Golden Gate or where a sufficient number of specimens have been collected to render a provisional [P] member status. Absent the former, it is not possible to assign member status if only one or two specimens have been collected from a spoil pile.

Caloosahatchee Formation Members, Pleistocene. In 1958, DuBar described three successive members of the Caloosahatchee Formation (oldest to youngest): Fort Denaud, Bee Branch and Ayers Landing. Of the three, he noted the Fort Denaud Member contained the most widespread and diverse types of environments, including coral patch reefs, stretching from the southeast up into Collier and Sarasota Counties, its northern most extension. Along the Miami Canal in Palm Beach county, the Fort Denaud Member is 4 meters thick, the Bee Branch to 3 meters and the Ayers Landing to 1 meter. To date, no *Jenneria* species have been assigned to the Bee Branch Member.

Bermont Formation. In 1974, DuBar described the younger Bermont Formation which overlays the three Caloosahatchee Members. In 1978, Muriel Hunter applied a semiformal name to the beds in the Belle Glade rock pit as a Member of the Fort Thompson Formation. In 2007, Petuch retained the name but corrected the formation from the late Pleistocene Fort Thompson Formation to the older, mid-Pleistocene Bermont Formation which is widely distributed throughout the Everglades area. (Petuch & Roberts).

NOTE. For a full treatment of the Geology and Paleontology of the Everglades Region, see

Ancient Seas of Southern Florida, Petuch and Berschauer, 2021.

SYSTEMATICS

The zoological position of the genus has undergone considerable revision with Schilder (1924 and 1927), Fehse (2001), Bouchet and Rocroi (2005), Lorenz and Fehse (2009) and Bouchet, Rocroi, Hausdorf, Kaim, Kano, Nützel, Parkhaev, Schrödl and Strong (2017) contributing. Herein, the latter designation, which aligns with WoRMs, is accepted and is reflected herein.

Class Gastropoda
Subclass Caenogastropoda
Order Littorinimorpha
Superfamily Cypraeoidea
Family Ovulidae
Subfamily Pediculariinae
Tribe Cypraediini
Genus *Jenneria* Jousseau, 1884

The Floridian *Jenneria* species are separate from their Caribbean counterparts. Proposed species linkages between the two have been made by some past authors based on taxonomic characteristics, without aligning the ages or stratigraphy. In regard to the Floridian taxa, Landau and da Silva (2010) state: "In summary, all the taxa described by Petuch (1988, 1991) are probably [emphasis added] synonyms of *J. richardsi*". The statement was based upon the premise that none of characteristics cited by Petuch were diagnostic in terms of establishing separate species status. However, aside from accepting Smith and Olsson's Pliocene strata designations for *J. loxahatchiensis* and *J. richardsi* (in error), the authors do not address the stratigraphic implications of the various Formations and their Members.

***Jenneria* Species**

<u>Described Species</u>	<u>Type Locality</u>	<u>Age</u>
<i>J. lindae</i> Petuch, 1988	Old Mule Pen Quarry, East Naples, Collier County	Golden Gate Member, Plio-Pleistocene
<i>J. violetae</i> Petuch, 1991*	APAC Pit, Sarasota	?
<i>J. richardsi</i> Olsson, 1967	Dade-Collier County Line	Fort Denaud Member, Caloosahatchee Formation
<i>J. keatonae</i> Petuch, 1991	Miami Canal, 16 km. south of Lake Harbor	Ayers Landing Member, Caloosahatchee Formation
<i>J. loxahatcheensis</i> Smith, 1936	Loxahatchee, Palm Beach County	Holey Land Member, Bermont Formation
<i>J. hepleri</i> Olsson, 1967	Miami Canal	Holey Land Member, Bermont Formation

*synonym of *J. lindae* (per Petuch and Berschauer)

New Species

<i>J. sandrae</i> , new species	Rinker Materials SCL Quarry, Miami	Belle Glade Member, Bermont Formation
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As such, Landau and da Silva's statement is not definitive and is insufficiently supported without further elaboration.

Jenneria sandrae Daughenbaugh, new species
(Plate 1, Figures A-D)

Description. Ovate-elliptical, breadth to length ~ 1 to 2; anterior extremity slightly protruding, posterior extremity slightly puckered (pinched); sulcus indistinct; dorsal pustules small, numerous, evenly distributed; threads connecting dorsal pustules absent/obsolete; marginal pustules connected to the basal riblets; columellar riblets 13, ending with small nodes at the apertural lip, with shorter riblets between; labral riblets 21; base slightly rounded on the columellar side, less so on the labial side; aperture narrow, wider anteriorly; fossula smooth, short, protruding pit. Size: 23.9 mm

Holotype. Los Angeles County Museum of Natural History, LACMNH *to be determined*.

Type Locality. Rinker Materials SCL Quarry, Miami, Dade County, Florida

Etymology. Named for Sandy Kendrew, the wife of Eric Kendrew, who passed in 1998.

Stratotype. Belle Glade Member, Bermont Formation [Chibanian Age (~750 ka)], Late Middle Pleistocene.

Discussion. The holotype was collected by Eric Kendrew from the Rinker Materials SCL Quarry Pit, Miami in June, 2010 (Eric Kendrew, personal communication, 2022). Petuch has provided additional comments: "There is a small layer of the Coffee Mill Hammock Member of the Fort Thompson Formation exposed in the Rinker Pits, but that has very few species in it and they are all typical latest Pleistocene species ... the majority of well-preserved fossils in the Rinker pits are from the Belle Glade Member. ... I would bet that *sandrae* is also a Belle Glade Species." (Petuch,

personal communication, 2022). As such, *J. sandrae*'s placement in the Belle Glade Member of the Bermont Formation is considered provisional. *Jenneria sandrae* represents the last of Florida's fossil *Jenneria*. It is likely a descendent of the older *J. hepleri*.

Description *Jeneria hepleri*. "The shell is of medium size, ovate, with an evenly rounded dorsum and slightly pouting anterior and posterior ends. The base is slightly convex on the body side, less so on the lip, the aperture narrow in the middle, wider in the anterior section. Pustules are relatively few and large as compared with the other Florida forms and are connected with coarse, axial threads which show well on the sides: under dark light, the pustules or tubercles are ringed as in *richardsi*. Cross riblets on the base as shown in the figure terminate at the aperture in small nodes on the body side."

Size. 20.8-22.0 mm.

Comparison. Olsson correctly states that the characteristics of *J. hepleri* safely separates it from the other described Floridian fossil *Jenneria* of the time. That is also true of all older species described by Petuch. *Jenneria sandrae*, described herein, is only comparable to the older Holey Land Member, *J. hepleri*. However, the latter's ovate shape, larger and fewer pustules, and presence of dorsal connecting threads safely separates the two species (see Plate 1, Figures E-G).

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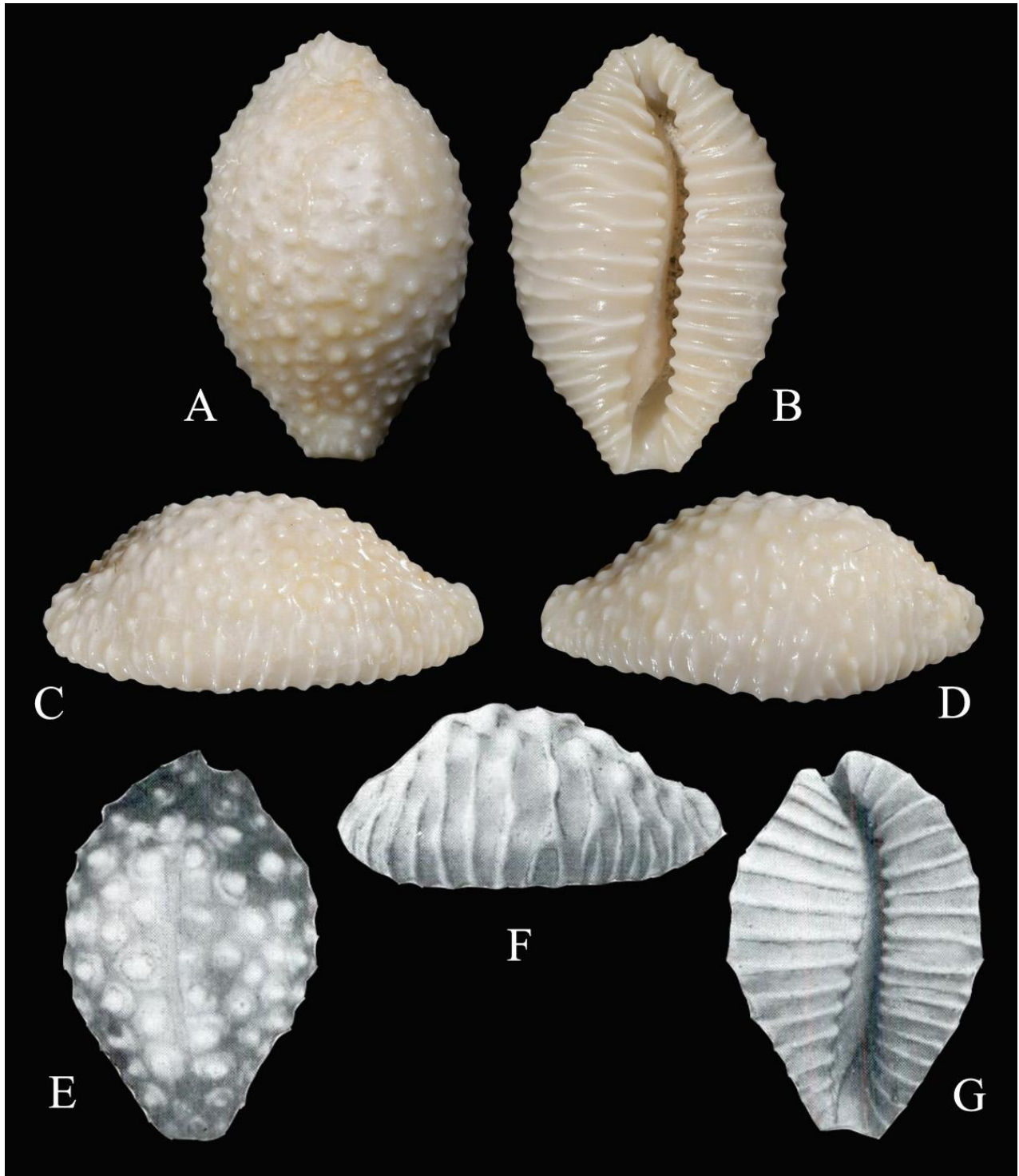


Plate 1. New fossil *Jenneria* species.

A-D= *Jenneria sandrae* new species, Holotype, 23.9 mm in length, Rinker Materials SCL Quarry, Miami, Dade County, Florida. **E-G=** *Jenneria hepleri* Olsson, 1967, 20.8 mm. Miami Canal, Florida.